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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

IMPINJ, INC.,

Plaintiff,

v.

NXP USA, INC.,

Defendant.

Case No. 4:19-cv-03161-YGR-AGT

**PLAINTIFF IMPINJ, INC.'S NOTICE OF
MOTION AND MOTION FOR PARTIAL
SUMMARY JUDGMENT**

Date: Tuesday, January 31, 2023

Time: 2:00 p.m.

Location: Courtroom 1

Judge: Hon. Yvonne Gonzalez Rogers

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NOTICE OF MOTION AND MOTION

PLEASE TAKE NOTICE that Plaintiff Impinj, Inc. (“Impinj”) hereby moves for partial summary judgment and will seek a hearing on the motion on January 31, 2023, at 2:00 p.m., or as soon thereafter as the matter may be heard, in the courtroom of the Honorable Yvonne Gonzales Rogers, United States District Court, Oakland Courthouse, 1301 Clay Street, Oakland, CA 94612, Courtroom 1 - 4th Floor Patent.

More specifically, Impinj seeks partial summary judgment that Defendant NXP USA, Inc. (“NXP”) has infringed U.S. Patent No. 9,633,302 (the “’302 patent”) and that NXP’s invalidity arguments are insufficient as a matter of law. This motion is based on the attached memorandum, the Declaration of Ramsey M. Al-Salam, statement of undisputed material facts, the pleadings and papers on file, and any other briefing or evidence presented in connection with the motion.

MEMORANDUM OF POINTS AND AUTHORITIES

I. INTRODUCTION

Impinj seeks summary judgment that NXP has infringed the ’302 patent and that the prior art it has mustered cannot invalidate the Asserted Claims as a matter of law. The ’302 patent is directed to an integrated circuit (“IC”) that has antenna contacts separated by a channel with ends that are substantially the same width, and substantially wider than the width of the channel center. This channel shape is intended to facilitate the flow of fluid (i.e., adhesive) when the IC is “glued” to an antenna during inlay assembly. Examples of channels having such shapes are set forth in Figure 13 of the patent, duplicated below:

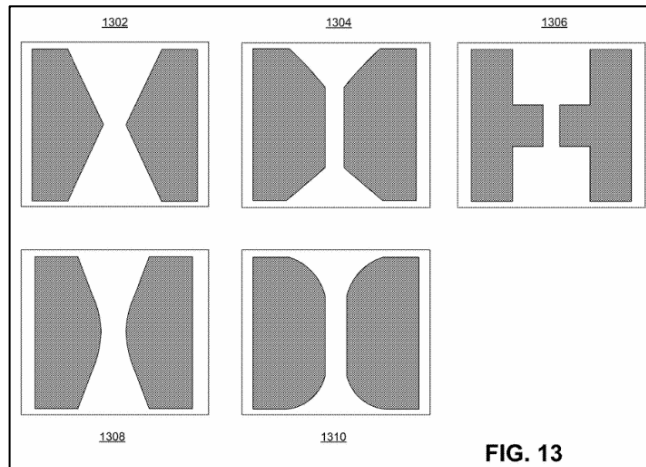
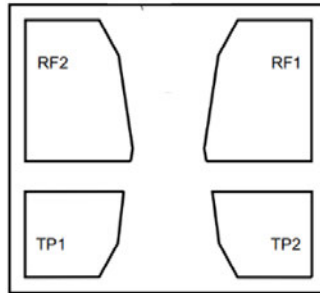


FIG. 13

The structure of NXP's Accused Products is undisputed. The Accused Products have a main channel (with the ends wider than the middle) bisected by a side channel, as set forth below:



NXP makes three noninfringement arguments: (1) that its channel does not “separate” the contact pads (RF1 and RF2) because it is not deep enough; (2) that the addition of the side channel avoids infringement because it results in two channels; and (3) that its channel does not, in practice, facilitate fluid flow. Each of these arguments raises an issue of claim construction that can be disposed of as a matter of law. First, the '302 patent discloses that the channel only needs to be deep enough to separate the upper contact layer of the antenna contacts; it does not need to reach into the underlying repassivation layer. Second, the Court rejected NXP's second argument in claim construction, when it held that the claimed channel was not required to have “continuous sidewalls” (i.e., meaning it could have an intersecting side channel). Third, the “facilitate fluid flow” clause at the end of claim one is a statement of the purpose of the claimed structure; it is not a substantive limitation to the claim. The claim is directed to a structure, not a function and, even if it had to perform the function of facilitating fluid flow, NXP has admitted that its channels perform that function. For these reasons, the Court should grant summary judgment of infringement.

As to invalidity, NXP relies on two grounds to argue the Asserted Claims are invalid. Both grounds, however, rely on references that are not directed to the invention of the '302 patent or fail to disclose critical elements, as the Patent Trial and Appeal Board (“PTAB”) already found in NXP's failed IPR. NXP relies on the Eberhardt patent, for example, for both grounds. But that patent, as the PTAB found, teaches away from use of the flip chip assembly process that underlies the '302 patent claims and disclosure. For that reason, the PTAB held that Eberhardt was not relevant to the '302 patent and a POSITA would not be motivated to combine the teachings of Eberhardt with references directed to flip chip assembly. The PTAB's reasoning was correct.

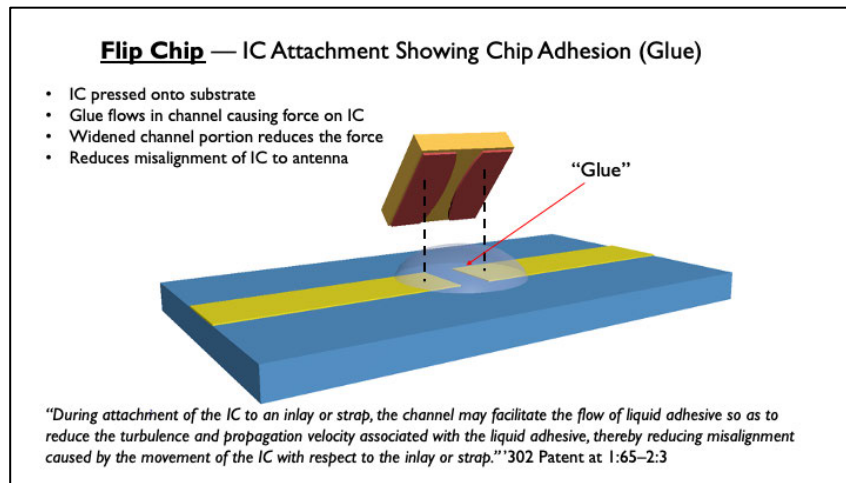
1 Eberhardt teaches away from the flip chip assembly technique and NXP cannot demonstrate that a
2 POSITA would have been motivated to combine it with flip chip assembly references. This renders
3 NXP's first ground insufficient as a matter of law.

4 Similarly, NXP's second ground relies on the Nishigawa patent, but in doing so, NXP must
5 twist the meaning of "IC substrate" to encompass a "holding sheet" that is indisputably not part of
6 the IC. This forced construction is inconsistent with the Court's construction of "IC substrate" and
7 NXP's admissions during claim construction that the IC substrate must be part of the IC. As the
8 PTAB held, Nishigawa does not disclose any modifications to an IC for purposes of attachment to
9 an antenna strap or inlay. Because NXP's second ground relies on an improper construction of "IC
10 substrate," it fails to render the Assert Claims obvious as a matter of law. For these reasons, the
11 Court should grant summary judgment that NXP cannot prove invalidity of the '302 patent.

12 **II. RELEVANT BACKGROUND**

13 **A. Overview of the Case**

14 This case currently involves four patents related to Radio Frequency Identification
15 ("RFID") technology, including the '302 patent. Both Impinj and NXP manufacture RFID ICs,
16 which are sold to inlay manufacturers that attach the ICs to an antenna to form an RFID tag or inlay.
17 One assembly method employed by inlay (or tag) manufacturers, such as Avery Dennison, is a flip
18 chip assembly method where the IC is inverted and pressed onto the antenna that is supported by
19 an inlay or strap, typically with a liquid adhesive placed between the IC and antenna that secures
20 the connection between them. This technique is illustrated below:



As part of the flip chip assembly process, liquid adhesive is placed on the strap or inlay substrate (blue) and the IC is inverted so that it can be pressed down onto the strap and secured in place by the adhesive after the adhesive is cured. Importantly, the antenna contacts of the IC (red) must align with the antenna connection points on the strap (yellow) to ensure a reliable connection.

B. The '302 Patent

The flip chip assembly method described above requires that the antenna be electrically connected to the IC. The parties originally used "bumps" on the IC to connect to the antenna. Ex. A¹ at 7:51-60 (discussing the use of bumps in the prior art). One of the other patents-in-suit, the '631 patent, disclosed and claimed an improvement over bumps, consisting of large contact pads (shown above in red). The large contact pads make attaching the antenna to the IC easier and more reliable. The '302 patent reflects an improvement on the '631 patent by utilizing a channel shape between the large pads intended to minimize the stress/turbulence that could be caused by excess adhesive and force applied to the IC during the assembly process.

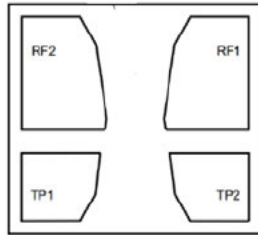
The inventor of the '302 patent recognized that during inlay assembly, the IC and inlay could squeeze the adhesive, which could result in turbulence of the adhesive and cause misalignment of the IC on the inlay. *Id.* at Abstract. The shape of the channel disclosed in the '302 patent reduces the potential fluid turbulence, thereby reducing the likelihood that pressure from the adhesive will shift the IC during assembly and result in misalignment. *Id.* at 17:29-47. The '302

¹ All Exhibits are attached to the Declaration of Ramsey Al-Salam ("Al-Salam Declaration").

patent also discloses that the IC can include a thick repassivation layer that is typically on top of the passivation layer of the IC and below the conductive contact layer of the antenna contact pads. The repassivation layer “may be used to reduce variations in mounting capacitance by ensuring a fixed distance between circuits of IC 724 and antenna 726.” *Id.* at 9:59-62. The IC also includes a channel with a center cross-section that is smaller than the cross-section of the ends.

C. Impinj’s Infringement Accusations

Impinj asserts that NXP’s UCODE 7/7m with large pads, 8/8m, and 9 (collectively “the Accused Products”) infringe claims 1, 3, 4, and 7 of the ’302 patent (the “Asserted Claims”).² In its infringement contentions, which are essentially the same for each Accused Product, Impinj identified where each element of the Asserted Claims is found in the Accused Products. A general representation of the contact pad configuration of the UCODE products is captured by the diagram of the UCODE 8 below.



Impinj identifies the RF1 and RF2 pads as the recited “antenna contacts” and the “channel” as running north-south between the RF1 and RF2 pads and the TP1 and TP2 pads. Impinj’s identification of the antenna contacts includes [REDACTED]

[REDACTED].³ Impinj does not allege that the TP1 or TP2 pads are the recited “antenna contacts.” In response to Impinj’s infringement contentions, NXP identified its non-infringement positions in response to Impinj’s interrogatory no. 1. NXP supplemented that interrogatory response on the final day of fact discovery. NXP further argued its noninfringement positions through the rebuttal expert report of Dr. Vivek Subramanian. Each of these positions is addressed below.

² Impinj amended its infringement contentions to include NXP’s UCODE 9 IC, which was released during the pendency of this matter. *See* ECF No. 105.

³ There is also [REDACTED]

Ex. B ¶ 379.

D. The Court’s Claim Construction Decision

During claim construction, the parties disputed the meaning of five claim terms found in the Asserted Claims, with three of those terms (substantially the same size, substantially larger, and substantially symmetric) treated as a single term for purposes of the *Markman* hearing. ECF No. 102 at 6:18-7:25.⁴ One of these disputed terms was “channel.” NXP argued that channel should be construed as a “passage with continuous side walls for directed fluid flow,” while Impinj proposed a construction of “a course of passage through which something may be moved or directed.” *Id.* at 8:1-19. Impinj pointed out that the ordinary meaning of channel (e.g., the English Channel) did not preclude tributaries or side channels, and that there was nothing in the patent or file history that would limit the claim to a channel with no side channels / continuous side walls. ECF No. 77 at 15:3-7. The Court found that the term “channel” should be afforded its plain and ordinary meaning, “which is consistent with Impinj’s interpretation.” ECF No. 102 at 8:17-19. The parties also disputed the meaning of the term “IC substrate.” *Id.* at 6:3-17. The Court rejected both parties’ constructions and found the term should be construed as a “structure that provides support for the IC components.” *Id.* at 6:14-17.

E. Inter Partes Review of the ’302 Patent

On February 5, 2020, NXP filed a petition for *inter partes* review challenging the validity of claims 1-20 of the ’302 patent on two separate grounds: (1) Eberhardt⁵ in view of Nishigawa⁶ and (2) Eberhardt in view of Nishigawa and in further view of Gilleo.⁷ NXP supported its petition with the testimony of Dr. Jack Lee, who has not offered any opinions in this litigation. Impinj filed a patent owner preliminary response asserting that neither prior art ground invalidated the claims of the ’302 patent because, in significant part, neither Eberhardt nor Nishigawa were directed at

⁴ The parties also reached agreement on the construction of one term, “non-convex shape” that appears in asserted claim 3 only.

⁵ U.S. Patent No. 6,246,327. This is the same Eberhardt primary reference relied on for Ground 1 of Dr. Subramanian’s opening report on invalidity of the ’302 patent.

⁶ U.S. Patent No. 7,578,053. This is the same Nishigawa primary reference relied on for Ground 2 of Dr. Subramanian’s opening report on invalidity of the ’302 patent.

⁷ The Gilleo reference is the same referenced relied on as a secondary reference for Ground 1 of Dr. Subramanian’s opening report on invalidity of the ’302 patent. The Gilleo reference, however, is not the subject of this Motion.

1 what is claimed in the '302 patent. The PTAB agreed. More specifically, the PTAB held that neither
 2 Eberhardt nor Nishigawa disclosed the channel claimed in the '302 patent and that a POSITA would
 3 not be motivated to combine these references. In doing so, the PTAB rejected many of the
 4 arguments that NXP repeats here.

5 First, the PTAB disagreed with NXP that Nishigawa discloses a channel in the IC. Instead,
 6 it found that Nishigawa “teaches interconnecting pads that are not superimposed on the IC circuitry,
 7 but are built to extend outwards from the IC chip on the interposer module.” Ex. C at 22. The PTAB
 8 also found that “Eberhardt does not disclose flowing insulating material into the channel or
 9 configuring the shape of the channel for any purpose, including for the purpose attaching the chip
 10 to the substrate....” *Id.* at 19. The PTAB also disagreed with NXP that Eberhardt disclosed a flip
 11 chip assembly method. Instead, the PTAB found that Eberhardt “does not discuss a flip chip
 12 implementation and incorporates by reference subject matter critical of the cost of such flip chip
 13 implementations.” *Id.* at 22. Finally, the PTAB disagreed with NXP that a POSITA would be
 14 motivated to modify the channel shape of Eberhardt because that would be inconsistent with
 15 Eberhardt’s design goal of enlarging its interconnection pads. *Id.* at 22-23.⁸ Despite the PTAB’s
 16 rejection, NXP relies on Eberhardt and Nishigawa in this litigation as primary invalidity references.

17 **III. SUMMARY JUDGMENT ON INFRINGEMENT AND/OR INVALIDITY IS** 18 **PROPER WHERE THERE ARE NO DISPUTED MATERIAL FACTS**

19 Summary judgment is appropriate when no genuine disputed issues of material fact exist
 20 and when, viewing the evidence most favorably to the non-moving party, the movant is entitled to
 21 prevail as a matter of law. Fed. R. Civ. P. 56; *Celotex Corp. v. Catrett*, 477 U.S. 317, 322-23 (1986);
 22 *Eisenberg v. Ins. Co. of N. Am.*, 815 F.2d 1285, 1288-89 (9th Cir. 1987). Material facts are those
 23 that may affect the outcome of the case. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).
 24 A dispute as to a material fact is genuine if there is sufficient evidence for a reasonable jury to
 25 return a verdict for the nonmoving party. *Id.*

26 The party moving for summary judgment bears the initial burden of informing the district
 27 court of the basis for the summary judgment motion and demonstrating the absence of a genuine

28 ⁸ NXP did not move for reconsideration of the PTAB’s decision.

1 issue of material fact for trial. *Celotex*, 477 U.S. at 323; *C.A.R. Trans. Brokerage Co., Inc. v. Darden*
 2 *Restaurants, Inc.*, 213 F.3d 474, 480 (9th Cir. 2000). Where the moving party bears the burden of
 3 proof on an issue at trial it must make a *prima facie* showing in support of its position on that issue.
 4 *UA Local 343 v. Nor-Cal Plumbing, Inc.*, 48 F.3d 1465, 1471 (9th Cir. 1994). When the moving
 5 party has satisfied its initial burden of production, the non-moving party may not rest upon mere
 6 allegations or denials of the adverse party's evidence, but instead must produce admissible evidence
 7 that sets forth specific facts to show there is a genuine issue of material fact for trial. *Nissan Fire*
 8 *& Marine Ins. Co. v. Fritz Cos.*, 210 F.3d 1099, 1102 (9th Cir. 2000). The non-moving party must
 9 come forward with more than "the mere existence of a scintilla of evidence." *Anderson*, 477 U.S.
 10 at 252. "Where the record taken as a whole could not lead a rational trier of fact to find for the
 11 nonmoving party, there is no genuine issue for trial." *Matsushita Elec. Indus. Co., Ltd. v. Zenith*
 12 *Radio Corp.*, 475 U.S. 574, 587 (1986).

13 When the parties do not dispute the relevant facts regarding the structure of a product
 14 accused of patent infringement but disagree over whether that product infringes the claims of the
 15 patent, the question of literal infringement collapses into one of claim construction and is proper
 16 for summary judgment. *Johnson Worldwide Assoc. v. Zebco Corp.*, 175 F.3d 985, 988-89 (Fed. Cir.
 17 1999) (citing *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1578 (Fed. Cir. 1996)).
 18 The determination of infringement is a two-step process. First, the court must construe the asserted
 19 claims as a matter of law to ascertain their meaning and scope. *IMS Tech., Inc. v. Haas Automation,*
 20 *Inc.*, 206 F.3d 1422 (Fed. Cir. 2000); *Dawn Equip. Co. v. Kentucky Farms Inc.*, 140 F.3d 1009,
 21 1014 (Fed. Cir. 1998). Second, the claims as construed are compared to the allegedly infringing
 22 device. *Id.* To infringe a claim, each claim limitation must be present in the accused product, either
 23 literally or equivalently. *Sofamor Danek Grp., Inc. v. DePuy-Motech, Inc.*, 74 F.3d 1216, 1220
 24 (Fed. Cir. 1996).

25 "[A] district court may grant summary judgment on obviousness or anticipation only when
 26 the underlying factual inquires present no lingering genuine issues." *Beckson Marine, Inc. v. NFM,*
 27 *Inc.*, 292 F.3d 718, 723 (Fed. Cir. 2002); *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1745-46
 28

(2007) (“Where, as here, the content of the prior art, the scope of the patent claim, and the level of ordinary skill in the art are not in material dispute, and the obviousness of the claim is apparent in light of these factors, summary judgment is appropriate.”). “A determination of obviousness is based on underlying factual findings, including (1) the scope and content of the prior art; (2) the level of ordinary skill in the pertinent art; (3) the differences between the claimed invention and the prior art; and (4) the evidence of secondary factors, such as commercial success, long-felt need, and the failure of others.⁹ The factual findings underlying summary judgment of nonobviousness are reviewed under the summary judgment standard, and the ultimate determination of obviousness is a legal conclusion reviewed without deference.” *Cheese Sys., Inc. v. Tetra Pak Cheese and Powder Sys., Inc.*, 725 F.3d 1341, 1347-48 (Fed. Cir. 2013) (quotations and citations omitted).

IV. THERE IS NO DISPUTED ISSUE OF MATERIAL FACT THAT NXP INFRINGES THE ASSERTED CLAIMS

In its infringement contentions, and as further supported by the testimony of Dr. Scott Thompson, Impinj established a *prima facie* showing that the Asserted Claims read on the Accused Products. NXP disputes Impinj’s infringement allegations, offering three arguments of noninfringement of independent claim 1. All of NXP’s arguments, however, are issues that can be disposed of as a matter of law.

A. The Antenna Contacts of the Accused Products are Separated by a Channel

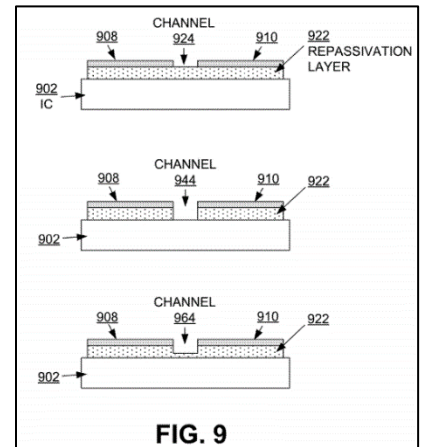
Claim 1 of the ’302 patent recites that the claimed first and second antenna contacts are “separated by a channel having a first end, a second end opposite the first end, and a center between the first end and the second end.” Ex. A at 21:16-19. Asserted claim 7 further specifies that the antenna contacts are formed of a “raised nonconductive structure” (i.e., the repassivation layer of the Accused Products) and a “conductive layer disposed on the raised nonconductive structure” (i.e., the conductive/contact layer of the Accused Products’ antenna contacts). Impinj’s infringement allegations have consistently identified the RF1 and RF2 pads of the Accused Products as the antenna contacts recited in claim 1 of the ’302 patent. Consistent with that

⁹ Because Impinj is moving for summary judgment that NXP has failed to show that the Asserted Claims are invalid, secondary considerations of nonobviousness are not relevant for purposes of this Motion.

1 identification, Dr. Thompson explained that the Accused Products' first and second antenna
 2 contacts [REDACTED]
 3 [REDACTED]. Ex. D ¶ 271. Dr. Thompson also pointed out that the
 4 antenna contacts are separated by a channel, where [REDACTED]
 5 [REDACTED]. *Id.* ¶¶ 273-84.

6 In his rebuttal report, Dr. Subramanian claimed that the antenna contacts of the Accused
 7 Products are not “separated by” a channel because [REDACTED]
 8 [REDACTED]. Ex. B ¶¶ 300-18; ECF No. 228 at 1 (clarifying that the dispute concerns the
 9 term “separated by”). NXP did not previously disclose this noninfringement position or otherwise
 10 suggest that the term “separated by” needed construction. This noninfringement position is
 11 untimely.¹⁰ To the extent that the Court allows NXP to assert this position, however, it can be
 12 resolved as a matter of claim construction—i.e., a matter of law. *See Phonometrics, Inc. v. Northern*
 13 *Telecom Inc.*, 133 F.3d 1459, 1464 (Fed. Cir. 1998) (“Disputes concerning the meaning of claims
 14 do not preclude summary judgment, because the resolution of those disputes is part of the process
 15 of claim interpretation, a question of law.”).

16 The '302 patent is clear that the channel separating the antenna contacts can merely have
 17 the depth of the conductive layer of the antenna contacts. There
 18 is no requirement that it reach into the repassivation layer. The
 19 specification describes “[e]mbodiments [that] are directed to an
 20 RFID tag integrated circuit (IC) having antenna contacts
 21 separated by a channel.” Ex. A at 1:61-62. As discussed above,
 22 an IC can include a repassivation layer and a conductive layer (or
 23 contact pads) on top of the repassivation layer. *Id.* at 13:13-32.



24 The repassivation layer may cover the entire surface of the IC (*id.* at 11:41-46), while the contact
 25 pads may be electrically isolated from each other (*id.* at 10:21-35). Importantly, the '302 patent
 26 teaches a POSITA that the channel may have a depth substantially equivalent to the height of the

27
 28 ¹⁰ If NXP has disclosed its noninfringement position earlier, Impinj could have sought to
 have the term “separated by” construed.

1 contact pads and that the repassivation layer may form its bottom, such as channel 924 in Figure 9
 2 above. *Id.* at 13:51-59, 16:1-4. Alternatively, the channel may have a depth substantially equal to
 3 the height of the contact pads and at least part of the repassivation layer, such as channel 944. *Id.*
 4 at 13:60-14:7. As another alternative, the channel may have a depth less than the combined height
 5 of the contact pads and repassivation layer, such as channel 964. *Id.* at 14:8-18. For all of these
 6 channel depths, the '302 patent describes each channel as separating the same thing—the contact
 7 pads. *Id.* at 14:19-30. The '302 patent does not state that one channel only separates the contact
 8 pads, while other channels separate the contact pads and repassivation layer. *Id.* Moreover, the
 9 channel, regardless of its depth, is intended to facilitate fluid flow during the inlay assembly
 10 process. *See id.* at 16:21-40, 17:3-16, 17:57-61. The '302 patent, therefore, teaches that a channel
 11 separating the antenna contacts does not need to have a depth extending to the bottom of the
 12 repassivation layer. *See Fenner Inv., Ltd. v. Cellco P'ship*, 778 F.3d 1320, 1323 (Fed. Cir. 2015)
 13 (“The foundation of judicial claim construction is ‘written description’ in the specification.”).

14 Consistent with this disclosure, Dr. Thompson identified the channel in the accused
 15 products that separated the antenna contacts of the Accused Products, [REDACTED]
 16 [REDACTED]
 17 [REDACTED]. Ex. D ¶¶ 274-80. Dr. Thompson also noted that claim 1 of the '302 patent does not recite
 18 that the channel must have a certain depth. *Id.* ¶ 284. Dr. Subramanian does not dispute that the
 19 [REDACTED]. *See Ex.*
 20 B ¶ 305. Accordingly, there is no disputed issue of material fact that the antenna contacts of the
 21 Accused Products are separated by a channel, as a POSITA would understand the term “separated
 22 by” in view of the teachings of the specification (i.e., that the channel may have a depth equivalent
 23 to the height of the contact pads / conductive layer). This is a sufficient basis to reject this
 24 noninfringement position as a matter of law.

25 **B. The Channel in the Accused Products Spans a Majority of the Width of the**
 26 **IC Substrate**

27 NXP also argues that the channel in the Accused Products does not span a “majority of the
 28 width of the IC substrate.” More specifically, NXP argues that its channel only extends between

1 RF1 and RF2, thus ending where the side channel intersects the main channel. But this argument is
 2 the same as the “continuous sidewall” argument that NXP already raised and lost at claim
 3 construction. Again, this is an argument that can be disposed of as a matter of law.

4 During claim construction, the parties disputed the meaning of the term “channel.” NXP
 5 proposed that the term “channel” should be construed as a “passage with continuous side walls for
 6 directed fluid flow,” while Impinj proposed that “channel” should be construed as “a course or
 7 passage through which something may be moved or directed.” ECF No. 102 at 8:1-19. In support
 8 of its proposed construction, NXP submitted a claim construction declaration from Dr.
 9 Subramanian. Dr. Subramanian agreed with NXP that a POSITA would understand “channel” to
 10 mean a passage with continuous side walls. ECF No. 78-2 ¶ 87. To support NXP’s position, Dr.
 11 Subramanian opined that the claims and the specification provide support that the sidewalls must
 12 be continuous, otherwise fluid flow would no longer be facilitated. *Id.* ¶ 92.

13 NXP argued in its responsive claim construction brief that a POSITA would understand that
 14 the claims require a channel with continuous sidewalls because “*all the relevant figures* from the
 15 patent show channels with continuous side walls (*see, e.g.*, Figures 9-13, reproduced below), and
 16 no description in the specification or figure discloses otherwise.” ECF No. 78 at 13:10-20 (emphasis
 17 added). NXP relied on a declaration from Dr. Subramanian to support its argument that the ’302
 18 patent only discloses continuous sidewalls. *Id.* (relying on ECF No. 78-2 ¶ 92). The Court agreed
 19 with NXP that “embodiments in the specification have continuous sidewalls” but held that this fact
 20 “alone does not warrant importing limitations into the claims.” ECF No. 102 at 8:9-16 (citing
 21 *Thorner v. Sony Comp. Entm’t Am. LLC*, 669 F.3d 1362, 1366-67 (Fed. Cir. 2012)). Accordingly,
 22 the Court rejected NXP’s proposed construction and instead “construe[d] ‘channel’ according to its
 23 plain and ordinary meaning (which is consistent with Impinj’s interpretation).” *Id.* at 8:17-19.

24 NXP and Dr. Subramanian now apparently seek a do-over. Specifically, Dr. Subramanian
 25 and NXP argue that the length of the channel ends when it encounters the side channel. As Dr.
 26 Subramanian admits, Dr. Thompson identifies the space between the RF1 and RF2 and between
 27 TP1 and TP2 as a single channel by which the first and second contacts are separated. Ex. B ¶ 320
 28

(citing Ex. D ¶¶ 277-80).¹¹ But Dr. Subramanian continues that claim one requires that the channel separate the antenna contacts, which, according to Dr. Subramanian, requires that the channel can only be the length of the antenna contacts. Ex. B ¶ 320. This makes no logical sense. The claim requires that the channel separate the antenna contacts, but there is nothing that says that the length of the channel is confined to the portion that does the separation. Because the channel is not required to have continuous sidewalls it, by definition, can extend beyond the antenna contacts it separates just as a river separating two islands can extend beyond those islands. Similarly, a street does not become multiple distinct streets every time there is a cross street.

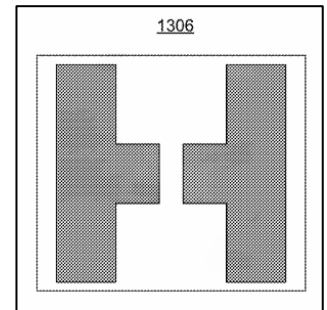
Nowhere in the '302 patent does it state that the length of the channel is solely dictated by the length of the antenna contacts that the channel separate. The '302 patent teaches that the channel separates the antenna contacts and, therefore, “*may have [a] length[] that correspond[s] to the size of contact pads 908/910.*” Ex. A at 14:19-30 (emphasis added). But the '302 patent also states that the channel could have a length that is not in-step with the length of the antenna contacts. *Id.* In view of the specification, a POSITA would understand that the channel length is not dictated by the length of the antenna contacts. To do so would import a limitation into the claims, a position the Court has already rejected. *Thorner*, 669 F.3d at 1366-67.

Dr. Subramanian’s argument is ultimately a rehash of NXP’s rejected claim construction argument. Dr. Subramanian expands on his “plain and ordinary meaning” of channel, by arguing that to a POSITA, Dr. Thompson’s single channel is actually two separate and distinct channels. Ex. B ¶ 322. As seen in Dr. Subramanian’s annotated image of the UCODE 8, Dr. Subramanian opines that there is one distinct channel between the RF1 and RF2 pads (in blue), and a

¹¹ To the extent NXP argues that Dr. Thompson identified two distinct channels and not a single channel (*see, e.g.*, ECF No. 228 at 2 (arguing that Impinj contends two separate and distinct channels can be considered a single channel)), NXP is mischaracterizing Dr. Thompson’s opinion. Dr. Thompson clearly identifies a single channel in his infringement opinions as spanning a majority of IC substrate of the Accused Products and separating both RF1 and RF2, and TP1 and TP2. Ex. D ¶¶ 277-280.

1 separate distinct channel between the TP1 and TP2 pads¹² (in green). *Id.* Notably, Dr. Subramanian
 2 opines that there can be no channel where another “channel” intersects the main channel. In other
 3 words, Dr. Subramanian opines that there can only be a channel where the sidewalls of that channel
 4 are continuous. Dr. Subramanian attempts to support his opinion by arguing that “[t]he Court did
 5 not state that the plain and ordinary meaning allows two separate and distinct channels that are
 6 separated by intersecting channels at the ends of those separate and distinct channels to form a
 7 single channel.” *Id.* ¶ 325. That is incorrect. The Court clearly stated that “NXP has not shown that
 8 continuous sidewalls are required by the invention.” ECF No. 102 at 8:13-15. In doing so, the Court
 9 necessarily rejected NXP’s argument that “intersecting channels” would “eliminate the purpose of
 10 the limitations on the dimensions of the cross-sections of ‘the channel,’ improperly rendering this
 11 claim language superfluous.” ECF No. 78 at 14:7-21.

12 Dr. Subramanian’s and NXP’s last argument contradicts their previous representations to
 13 the Court. In its responsive claim construction brief, NXP argued that a channel has continuous
 14 side walls because “all the relevant figures from the patent show channels with continuous side
 15 walls,” and included image 1306 from Figure 13 as support. ECF No. 78
 16 at 13:10-20 (citing Dr. Subramanian’s claim construction declaration for
 17 support). In other words, NXP argued that image 1306 from Figure 13
 18 shows a channel with continuous side walls, not one with discontinuous
 19 side walls. *Id.* Dr. Subramanian and NXP now reverse themselves,
 20 arguing that the Court’s plain and ordinary meaning construction was meant to distinguish the
 21 “discontinuous walls” shown in image 1306 of Figure 13, but that a channel with a hole in its walls
 22 (caused by the intersecting side channel, for example) still cannot meet the Court’s plain and
 23 ordinary meaning construction. Ex. B ¶¶ 325-27. This reversal is simply an attempt to reargue a
 24 claim construction position that the Court has already rejected. The Court held that a channel (like
 25 the English Channel) can have tributaries, just as the Accused Products have a side channel, and
 26 just as single street can have cross streets. ECF No. 102 at 8:4-19. The Court should (again) reject



27 _____
 28 ¹² Dr. Thompson does not identify the TP1 and TP2 pads as the antenna contacts recited in
 the Asserted Claims. *E.g.*, Ex. D ¶ 266.

1 this noninfringement argument as a matter of law.¹³

2 **C. “Facilitating Fluid Flow” Is Not a Structural Limitation**

3 NXP’s last noninfringement position is based on its argument that its channel does not
4 “facilitate fluid flow” as recited in the last clause of claim 1. But the claims are directed to the
5 structure of an IC, and the reference to facilitating fluid flow is a statement of the purpose of the
6 claimed structure; it is not a structural limitation. A structural claim does not require that the
7 accused product be used to perform a function; that would be mixing a device claim with a method
8 claim. *See, e.g., MasterMine Software, Inc. v. Microsoft Corp.*, 874 F.3d 1307, 1313-16 (Fed. Cir.
9 2017) (reversing district court finding of indefiniteness because claims merely claim a system that
10 possesses a structure capable of performing a function).

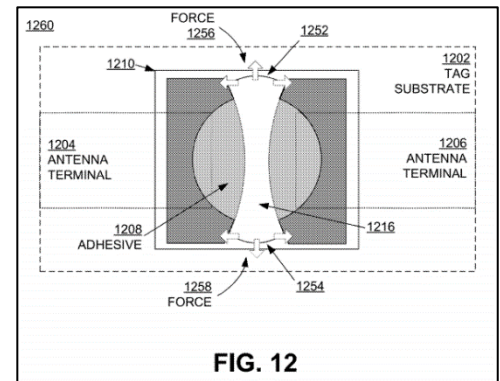
11 Claim 1 recites a specific channel shape where “the channel spans a majority of a width of
12 the IC substrate” and has “a first transverse channel cross-section at the first end [that] is
13 substantially the same size as a second transverse channel cross-section at the second end and
14 substantially larger than a third transverse channel cross-section at the center.” Ex. A at 21:22-26.
15 Claim 1 concludes by stating that this channel shape “facilitate[s] a fluid flow from the center to
16 the first and second ends.” *Id.* at 21:27-28. But a statement of the intended purpose of a claimed
17 structure is not considered a substantive limitation of the claims. *See Texas Instruments Inc. v. U.S.*
18 *Int’l Trade Comm’n*, 988 F.2d 1165, 1172 (Fed. Cir. 1993). In *Texas Instruments*, the Federal
19 Circuit held that a clause describing the fluid flow resulting from a claimed structure should not be
20 afforded weight in an infringement analysis. The claim there concluded with the clause “whereby
21 the fluid will not directly engage the device and electrical connection means at high velocity, and
22 the conductors will be secured against appreciable displacement by the fluid.” *Id.* at 1171-72. Two
23 other claims at issue concluded with the clause “to preclude direct high velocity engagement

24 _____
25 ¹³ Dr. Subramanian also disputes that the Accused Products meet the limitation “the channel
26 spans a majority of a width of the IC substrate” and the limitation “a first transverse channel cross
27 section at the first end is substantially the same size as a second transverse channel cross-section at
28 the second end and substantially larger than a third transverse channel cross-section at the center”
but his noninfringement opinions for both limitations are based on his argument that a channel
cannot have discontinuous side walls. Ex. B ¶¶ 331-32, 336-37. Thus, these noninfringement
positions fall with Dr. Subramanian’s attempt to reargue the claim construction position that the
Court already rejected.

1 between the fluid and the device and the electrical connections thereto.” *Id.* The accused infringer
 2 argued that these clauses were further limitations to the claims that must be met by the accused
 3 products in order to infringe. The Federal Circuit disagreed, holding that “[a] ‘whereby’ clause that
 4 merely states the result of the limitations in the claim adds nothing to the patentability or substance
 5 of the claim.” *Id.* at 1172 (citing *Israel v. Cresswell*, 166 F.2d 153, 156, 35 CCPA 860 (1948)).
 6 Instead, these clauses “merely described the result of arranging the components of the claims in the
 7 manner recited in the claims.” *Id.*; see also *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246
 8 F.3d 1368, 1376 (Fed. Cir. 2001) (“Again, we agree with defendants that this language is only a
 9 statement of purpose and intended result [and is not a limitation].”).

10 The same reasoning applies to the last clause of claim 1 of the ’302 patent, which is the last
 11 clause of a wherein clause. The ’302 patent makes it clear
 12 that the purpose of having wider channel ends is to
 13 facilitate fluid flow through the channel when compared
 14 to a straight channel. Specifically, the specification
 15 describes that “[i]n contrast to channel portions
 16 1152/1154, the larger transverse cross-sections of widened
 17 channel portions 1252/1254 may facilitate the flow of the fluid adhesive from the center out to the
 18 ends of the channel 1216 by decreasing the velocity of the propagating adhesive within widened
 19 channel portions 1252/1254.” Ex. A at 17:29-34. It continues that “the larger transverse cross-
 20 sections of widened channel portions 1252/1254 increase the volume of adhesive which can flow
 21 before turbulence occurs, thereby reducing the likelihood of fluid turbulence during adhesive
 22 propagation through channel 1216, facilitating fluid adhesive flow out to the channel ends, and also
 23 reducing the potential for IC movement and subsequent misalignment.” *Id.* at 17:40-47. Figure 12,
 24 above, captures this result of the non-convex channel shape.

25 The claim language reiterates that the purpose of the claimed channel shape is to facilitate
 26 fluid flow. The final clause of claim 1 merely describes the result of the channel shape recited in
 27 claim 1—the widened ends of the channel compared to the center facilitate fluid flow. But the claim
 28



1 does not require that the IC be glued to an inlay to infringe, much less that the channel facilitate
 2 fluid flow during such attachment. The claim limitations are directed to the structure and shape of
 3 the channel in the IC. The Court should find that this limitation is not relevant to the infringement
 4 analysis of claim 1.¹⁴

5 Even if the final clause is treated as a limitation (and it should not be), there is no dispute
 6 that the channel in the Accused Products facilitates fluid flow. Notably, claim 1 does not require
 7 that “all” fluid or “most” fluid flow in the channel. Instead, claim 1 simply recites that the channel
 8 “is shaped to facilitate a fluid flow from the center to the first and second ends.” [REDACTED]

9 [REDACTED]
 10 at NXP-IMP-NDCAL-00207856. While Dr. Subramanian opines that fluid flow is not “facilitated”
 11 because it slows down at the increased cross-section at the ends of the channel, “facilitates” does
 12 not require that fluid accelerate through the channel. Indeed, the ’302 patent teaches that slowing
 13 the velocity of the fluid facilitates flow because it allows for more fluid [REDACTED]
 14 to flow without an increase in turbulence. Ex. A at 17:29-47. Dr.
 15 Subramanian agrees, [REDACTED]
 16 [REDACTED]
 17 with the “intersecting channel”). Ex. B ¶¶ 343-44, 350-51. There is no [REDACTED]
 18 genuine dispute of material fact that the channel in the Accused Products facilitates fluid flow. To
 19 the extent Dr. Subramanian equates fluid flow to an increase in velocity, that is another mistaken
 20 claim construction issue that can be resolved by the Court as a matter of law.

21 **D. There is No Disputed Issue of Material Fact Concerning Dependent Claims 3,**
 22 **4, and 7**

23 NXP’s non-infringement positions for dependent claims 3, 4, and 7 can also be disposed of
 24 as a matter of law. For claim 3, NXP and Dr. Subramanian argue that the channel of the Accused
 25 Products does not have a non-convex shape because Dr. Thompson must include the side channel
 26 of the Accused Products in his identification of the “channel.” *Id.* ¶¶ 363-64. This position,

27 ¹⁴ In its IPR petition, NXP also acknowledged that this limitation may not carry patentable
 28 weight. Ex. F at 42 (“To the extent this limitation carries patentable weight as being more than an
 intended result...”).

1 however, is based on NXP's argument that a channel must have a continuous sidewall and cannot
 2 be intersected by a side channel. *Id.* The Court rejected this argument during claim construction
 3 and should do so again here. For claim 4, NXP and Dr. Subramanian do not identify any
 4 noninfringement position outside of those identified for claim 1. *Id.* ¶¶ 368-70. Claim 4, therefore,
 5 falls with claim 1.

6 Finally, for claim 7 NXP and Dr. Subramanian argue it is not infringed by the Accused
 7 Products for two reasons. First, NXP and Dr. Subramanian argue that the antenna contacts of the
 8 Accused Products do not contain a "raised nonconductive structure" because the Accused Products
 9 [REDACTED] This position is similar to NXP's erroneous
 10 "separated by" argument ([REDACTED]
 11 [REDACTED]) and can be disposed of as a matter of law for the same reasons
 12 discussed above. Second, NXP and Dr. Subramanian argue that the conductive layer of the Accused
 13 Products' antenna contacts is not "disposed on" the raised nonconductive structure because [REDACTED]
 14 [REDACTED].
 15 *Id.* ¶ 378. This argument, however, is based on a flawed interpretation of the plain and ordinary
 16 meaning of the term "disposed of." Claim 7 does not recite that the conductive layer is "*directly*
 17 disposed on" the nonconductive structure. Instead, it only recites that the conductive layer is
 18 "disposed on" the nonconductive structure. Ex. A at 21:45-49. The '302 patent confirms this
 19 understanding by teaching that one layer can be "disposed on" another, even if there is an
 20 intervening layer. *See, e.g., id.* at 4:56-59 (describing that an IC is "disposed onto" a strap substrate,
 21 where adhesive separates the IC and strap substrate). Dr. Subramanian and NXP's position is
 22 contradicted by the plain and ordinary meaning of "disposed on" as understood by a POSITA in
 23 view of the '302 patent specification. It should be rejected as a matter of law.

24 **V. NXP'S PURPORTED INVALIDITY GROUNDS FAIL TO INVALIDATE THE**
 25 **ASSERTED CLAIMS AS A MATTER OF LAW**

26 NXP alleges that the '302 patent is invalid under two grounds: (1) Eberhardt in combination
 27
 28

1 with Cornell¹⁵ or Ching-San¹⁶ (and in further view of Gilleo, which is not relevant for purposes of
 2 this Motion); and (2) Nishigawa in combination with Eberhardt. NXP's first ground fails as a matter
 3 of law because, just as the PTAB found, Eberhardt teaches away from flip chip technology, and no
 4 POSITA would be motivated to combine it with flip chip-related references. Further, there is
 5 nothing in Eberhardt that suggests widening the ends of a channel for an IC that will be connected
 6 to an antenna in a flip chip assembly, such as the IC recited in the Asserted Claims. NXP's second
 7 ground fails as a matter of law because Nishigawa does not disclose modifying an IC and NXP's
 8 attempt to overcome this shortcoming is based on an improper construction of the term "IC
 9 substrate." For the reasons set forth below, the Court should find that NXP's prior art fails to
 10 invalidate the Asserted Claims as a matter of law.¹⁷

11 **A. NXP's First Ground Fails Because Eberhardt Teaches Away from Flip Chip**
 12 **Assembly Techniques**

13 NXP's first purported invalidity ground relies on the combination of Eberhardt with Cornell
 14 or Ching-San. In order to argue this invalidity ground, Dr. Subramanian and NXP make arguments
 15 that are contradicted by the disclosure of the prior art, such that no reasonable fact finder could find
 16 that Eberhardt in view of Cornell or Ching-San invalidates the Asserted Claims. NXP's first ground
 17 of invalidity can be denied as a matter of law.

18 Dr. Subramanian acknowledges that Eberhardt alone does not anticipate or render obvious
 19 "wherein ... a first transverse channel cross-section at the first end is substantially the same size as
 20 a second transverse channel cross-section at the second end and substantially larger than a third
 21 transverse channel cross-section at the center." Ex. J ¶ 880. Instead, Dr. Subramanian argues that a
 22 POSITA would be motivated to combine Eberhardt with either Cornell or Ching-San to render this
 23 limitation obvious. *Id.* But Eberhardt teaches away from a flip chip assembly method, which both
 24 Cornell and Ching-San are directed to. Moreover, Eberhardt does not contain any disclosure
 25 concerning fluid flow and teaches that its interconnection pads should be as large as possible.

26 ¹⁵ U.S. Patent No. 6,184,581.

27 ¹⁶ U.S. Patent Application Publication No. 2011/0139501.

28 ¹⁷ Both Dr. Subramanian and Dr. Thompson proposed definitions of a POSITA. Ex. J ¶ 24; Ex. D ¶ 42. For purposes of this Motion, under either definition of POSITA NXP has failed to invalidate the Asserted Claims.

1 Accordingly, no reasonable fact finder could find that a POSITA would be motivated to combine
 2 Eberhardt with Ching-San or Cornell in a manner that would render the Asserted Claims obvious.

3 **1. No Reasonable Fact Finder Could Find that a POSITA Would be**
 4 **Motivated to Combine Eberhardt and Cornell**

5 Eberhardt discloses an IC that includes “interconnection pads” that are designed to provide
 6 more coupling area between the inlay circuit chip traces and conductive traces on IC. Ex. G at 2:30-
 7 35. Eberhardt teaches the use of a printing technique instead of other techniques, such as flip chip
 8 and wire bonding, because printing technology allows for (1) a reduction in cost and (2) ease of
 9 manufacturing, as compared to other techniques that utilize metalized pads (i.e., flip chip). *Id.* at
 10 6:58-7:5. Eberhardt also incorporates by reference a priority patent, U.S. Patent No. 6,091,332
 11 (“Eberhardt ’332”) into its disclosure. *Id.* at 1:22-28. Importantly, Eberhardt ’332 also teaches the
 12 use of printing fabrication techniques and discourages the use of flip chip techniques. Ex. H at 9:15-
 13 19 (“The present invention advantageously avoids costly flip chip technology and the associated
 14 process handling difficulties in permitting circuit chips to be secured to substrates conductive pads
 15 up.”). Eberhardt, therefore, teaches away from the use of flip chip techniques. The PTAB agreed,
 16 finding that NXP’s petition for *inter partes* review of the ’302 patent “fail[ed] to mention that
 17 Eberhardt seeks to address disadvantages of flip chip and wire bonding techniques that require
 18 expensive plating and metallization by substituting an additional layer of deposited material and
 19 implementing printed interconnection techniques.” Ex. C at 21; *id.* at 22 (“Eberhardt does not
 20 discuss a flip chip implementation and incorporates by reference subject matter critical of the cost
 21 of such flip chip implementations.”). Cornell, on the other hand, explicitly discloses an IC that is
 22 used as part of a flip chip implementation. Ex. I at 1:19-31; Ex. J ¶ 891.

23 As part of his motivation to combine argument for Eberhardt and Cornell, Dr. Subramanian
 24 argues that a POSITA would be motivated to combine Eberhardt and Cornell because both “discuss
 25 a flip chip assembly method where adhesive fluid is applied to the IC which is then flipped and
 26 pressed onto a substrate for bonding.” Ex. J ¶ 891. Dr. Subramanian continues that “nothing in
 27 Eberhardt teaches away from using a flip chip assembly.” *Id.* Dr. Subramanian’s opinion, however,
 28 is contradicted by Eberhardt’s disclosure and its incorporation of Eberhardt ’332, which teach away

from the use of a flip chip technique. Tellingly, Dr. Subramanian ignores the portions of Eberhardt’s disclosure that are critical of a flip chip implementation, making the same argument NXP made and lost at the PTAB. Ex. C at 22-23. Eberhardt is critical of the assembly technique that is expressly touted in Cornell (and the assembly technique utilized by the Accused Products), such that a POSITA would not be motivated to combine these references to arrive at the invention of the ’302 patent. Accordingly, no reasonable fact finder would conclude that Eberhardt and Cornell can be combined. *See, e.g., Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1362-63 (Fed. Cir. 2011) (finding that no reasonable juror could conclude that the prior art provides sufficient reason or motivation to combine to disclose the patented invention); *see also Asia Vital Components Co., Ltd. v. Asetek Danmark A/S*, 377 F. Supp. 3d 990, 1011-14 (N.D. Cal. 2019).

2. No Reasonable Fact Finder Could Find that a POSITA Would be Motivated to Combine Eberhardt and Ching-San

In addition to being critical of flip chip implementations, the PTAB rightly concluded that Eberhardt fails to disclose “flowing insulating material into the channel or configuring the shape of the channel for any purpose, including for the purpose of attaching the chip to the substrate.” Ex. C at 19. Instead, Eberhardt teaches that its interconnection pads connect to an antenna via separate coupling material that is printed without the use of adhesive. Ex. G at 4:46-53. Moreover, according to Dr. Subramanian “Eberhardt teaches that it is advantageous to increase the surface area of the interconnection pads as compared to the surface area of the RFID IC to facilitate connection with the antenna.” Ex. J ¶ 183; Ex. G at 2:31-35, 6:58-7:5.

Dr. Subramanian again takes positions that NXP lost before the PTAB because they are either contrary to the express disclosure of Eberhardt or are not supported by the disclosure of Eberhardt. First, Dr. Subramanian opines that Eberhardt recognizes the benefit of using adhesive to ensure a reliable electrical connection. Ex. J ¶¶ 909-10. Dr. Subramanian relies, however, on Eberhardt’s background discussion of assembly techniques such as flip chip, which the PTAB confirmed Eberhardt explicitly teaches away from using.¹⁸ Ex. C at 21; *id.* at 22 (“Eberhardt does

¹⁸ Although Ching-San does not specifically state that it is directed to a flip chip assembly A POSITA would understand that Ching-San concerns flip chip techniques. *See* Ex. K at Figs. 1A, 1B, 1C (showing an inverted IC being attached to an inlay).

not discuss a flip chip implementation and incorporates by reference subject matter critical of the cost of such flip chip implementations.”). Outside of recognizing flip chip as a known assembly method, Eberhardt does not disclose the flowing of insulating material or shaping a channel to facilitate that flow. *Id.* at 19. In part because Eberhardt is not concerned with attaching an IC to an antenna strap or inlay using adhesive, it contains no disclosure that would lead a POSITA to modify its channel to facilitate fluid flow.

Dr. Subramanian also opines that a POSITA would be motivated to modify Eberhardt’s interconnection pads to enlarge the channel ends and improve the flow of a conductive adhesive. Ex. J ¶¶ 910-11. But Dr. Subramanian ignores Eberhardt’s teachings of making its interconnection pads as large as possible, as he opined earlier in his opening report. *Id.* ¶ 183; Ex. G at 2:31-33, 6:58-7:5. As the PTAB put it, it is not clear how modifying Eberhardt’s channel by “increasing the width of the channel at the ends could be viewed as consistent with Eberhardt’s express design goal of enlarging the pad interconnection area because increasing the channel width reduces the pad connection area at the ends of the device, thereby reducing the available pad interconnection area.” Ex. C at 22. Eberhardt is critical of flip chip assembly techniques that utilize fluid adhesive and does not discuss the use of fluid adhesive as part of its printing assembly technique. Moreover, Eberhardt has the express design goal of enlarging its interconnection pads—a goal Dr. Subramanian agrees is disclosed. As the PTAB confirmed, nothing in Eberhardt would provide motivation for a POSITA to modify Eberhardt’s channel to facilitate fluid flow that is non-existent in Eberhardt. A POSITA, therefore, would not be motivated to combine these references to arrive at the invention of the ’302 patent. Accordingly, no reasonable fact finder would conclude that Eberhardt and Ching-San can be combined. *Cf. Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d at 1362-63 (finding that no reasonable juror could find motivation to combine).

B. NXP’s Second Ground Fails Because Nishigawa Does Not Disclose Modifying an IC and NXP’s Position is Based on Improper Claim Construction

The Asserted Claims are directed to an RFID IC with an improved channel shape between antenna contact pads. The preamble of claim 1¹⁹ clearly states “A Radio Frequency Identification

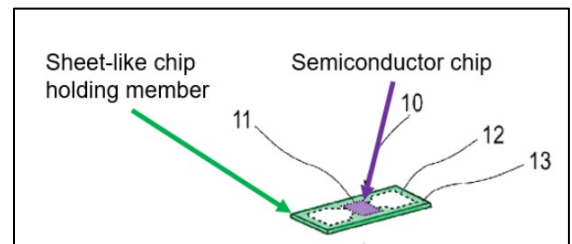
¹⁹ Claims 3, 4, and 7 also state “The RFID IC of claim 1....”

(RFID) integrated circuit (IC) comprising....” Conversely, Nishigawa, the primary reference for NXP’s second ground of invalidity, is directed to a “sheet-like chip holding member” (i.e., a strap) that an IC is mounted on, and that is bonded to an antenna circuit. Ex. L at Abstract; Ex. J ¶ 983. Nishigawa does not discuss any modification to the IC that is mounted on the strap. Instead, Nishigawa proposes modifications to the strap so that it can be used with a bonding device. Ex. L at Abstract. The PTAB confirmed that Nishigawa does not concern modifications to an IC, finding that “Nishigawa does not discuss a channel in [] chip 11....” Ex. C at 10-11, 17.

Dr. Subramanian does not dispute that Nishigawa discusses modifications to its strap instead of an IC. But to arrive at his obviousness opinion, he construes the claim term “IC substrate” in a manner that is incorrect as a matter of law. More specifically, he opines that Nishigawa’s “sheet-like chip holding member” (or strap) can be considered an “IC substrate” as construed by the Court. Dr. Subramanian is forced to do so because Nishigawa does not disclose any channel *on the IC*. Because Dr. Subramanian’s opinion is contrary to the proper construction of “IC substrate,” NXP’s second ground for invalidity should be rejected as a matter of law.

During claim construction, the parties disputed the meaning of the term “IC substrate.” NXP proposed that it meant a “structure on which the IC components are located.” Impinj argued that “are located” was too vague because it might encompass materials that do not directly support the IC components. ECF No. 77 at 9:24-10:10. Impinj proposed that the term be construed as “the portion of the semiconductor material on which the IC components are fabricated.” ECF No. 102 at 6:3-6. The Court did not find either party’s construction for the term “IC substrate” persuasive. Instead, “the Court proposed to construe this term as a ‘structure that provides support for the IC components’—the definition provided by NXP’s expert, Dr. Subramanian—and the parties agreed.” *Id.* at 6:6-17.

Based on the Court’s construction, Dr. Subramanian and NXP now take the position that the substrate of the “sheet-like chip holding member” 13 (green) in Nishigawa, which is not part of the IC



(purple), meets the Court’s construction of “IC substrate” because the IC “is *mounted on* a sheet-like chip holding member” which provides support for the IC. Ex. J ¶¶ 990-91 (emphasis in original). In other words, Dr. Subramanian takes the position that a separate strap substrate is an IC substrate under the Court’s construction. As shown by Dr. Subramanian’s annotations to part of Figure 2 of Nishigawa, above, he does not identify an IC substrate as any part of the IC (or semiconductor chip).

Nishigawa’s sheet-like chip holding member is not an “IC substrate” within the Court’s construction or the ordinary meaning of the term. A POSITA would understand an IC substrate to be a portion of the IC that supports the IC components, as the Court held. A sheet that surrounds the IC is not an IC substrate, just as a hand is not an IC substrate even if a person holds an IC in his hand, thereby providing some “support” for the IC.

Further, the claim language and patent make clear that the IC substrate is part of the IC. The claim is directed to an RFID IC, as set forth in the preamble, which recites “[a]n RFID IC comprising”²⁰ Further, the patent consistently discloses a tag (or strap substrate) as distinct from the IC. *See, e.g.*, Ex. A at 1:38-39, 4:4-10. A POSITA reading the claim language in light of the specification, would understand that all recited components are part of the IC and not a distinct strap or tag.

Moreover, NXP admitted that the IC substrate was part of the IC during claim construction. As discussed above, Dr. Subramanian submitted a claim construction declaration in support of NXP’s proposed construction. As part of that declaration, Dr. Subramanian opined that an IC

²⁰ NXP might argue that the preamble is not a limitation. But even if the preamble is not limiting, it can provide context for construing a claim. For example, in *Advanced Software Design Corp. v. Fiserv, Inc.*, the claims at issue contained preambles that define the environment in which the accused infringer must act or described capabilities that an accused device must have. 641 F.3d 1368, 1374-75 (Fed. Cir. 2011). The defendant argued that the Federal Circuit could not consider the purpose of the preamble in construing the claims because “[p]reamble language that merely states the purpose or intended use of an invention is generally not treated as limiting the scope of the claim.” *Id.* at 1375 (quoting *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 952 (Fed. Cir. 2006)). The Federal Circuit disagreed, finding that it could look “to the statement of purpose [in the preamble] to distinguish between those limitations that describe the environment in which the claim operates from the limitations that must be performed by an accused infringer.” *Id.* The same is true here. The Asserted Claims recite that the components are part of an RFID IC, not some other “combination.”

1 substrate is used four times in claim 1, including as “one of the elements comprising a Radio
2 Frequency Identification (RFID) integrated circuit (IC).” ECF No. 78-2 ¶ 51. Dr. Subramanian
3 confirmed that “[a] POSITA would have understood ‘IC substrate’ in asserted claims 1 and 4 (as
4 well as unasserted claims 5 and 6) to *connote a structure that is part of the integrated circuit*
5 *(IC)....*” *Id.* ¶¶ 53, 58 (emphasis added). NXP also represented to the Court that the IC substrate is
6 part of the IC. Specifically, NXP stated that it was not arguing that the “‘structure’ on which the IC
7 components are located is *any* possible structure to which the IC components are ultimately
8 connected (which under Impinj’s view includes the tag, the module, and (by extension) the end
9 product to which the RFID tags are eventually attached).” ECF No. 78 at 5:14-18 (emphasis in
10 original). NXP concluded its argument to the Court stating that the claim explicitly requires that
11 “the ‘IC substrate’ is *part of* the overall IC.” *Id.* at 5:18-21 (emphasis added). Both NXP and Dr.
12 Subramanian clearly understood the IC substrate to be part of the overall IC and made those explicit
13 representations to the Court.

14 Despite NXP and Dr. Subramanian representing to the Court that the IC substrate is part of
15 the IC and is not any possible structure to which the IC components are ultimately connected, NXP
16 now takes a contradictory position. NXP’s and Dr. Subramanian’s opinion that Nishigawa’s sheet-
17 like chip member (which is indisputably not part of the IC) can be the “IC substrate” is contrary to
18 the Court’s construction and plain meaning of “IC substrate.” Because Dr. Subramanian and NXP
19 do not identify any alternative “IC substrate” in Nishigawa, this ground does not invalidate the
20 Asserted Claims as a matter of law.

21 VI. CONCLUSION

22 For the reasons above, NXP’s noninfringement and invalidity arguments can (and should)
23 be dispensed with as a matter of law. Impinj respectfully requests that the Court enter summary
24 judgment of infringement of the ’302 patent, and summary judgment that NXP’s two grounds for
25 invalidity of the ’302 patent fail as a matter of law.
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28

1 Dated: October 11, 2022.

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CERTIFICATE OF SERVICE

I certify under penalty of perjury that on October 11, 2022, I caused to be electronically filed the foregoing document with the Clerk of the Court using the CM/ECF system, which will send a notification of the filing to the email addresses indicated on the Court's Electronic Mail Notice List.

Dated: October 11, 2022

/s/ Ramsey M. Al-Salam
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